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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/767,050	01/22/2001	Colin D. Frank	CE08703R	5082

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EXAMINER

WARE, CICELY Q

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/767,050

Applicant(s)

FRANK, COLIN D.

Examiner

Cicely Ware

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

1. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.
- 2.

### ***Specification***

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

4. Claim 4 is objected to because of the following informalities:
  - a. Line 3, applicant uses the phrase "with a the sector-specific". Examiner suggests using "with a sector-specific" for clarification purposes.  
Appropriate correction is required.
  - b. Examiner suggests applicant move claims 11-14 to Pg. 37 for clarification purposes.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Ishikawa et al. (US Patent 5,455,844).

With regard to claim 1, Ishikawa et al. discloses in (Fig. 1(11, 21, 12, 22)) selection diversity system comprising: a first Minimum Mean Square Error (MMSE) receiver having a signal as an input, wherein the signal was transmitted utilizing a transmit-diversity scheme; and a second MMSE receiver having the signal as an input (col. 6, lines 61-67, col. 7, lines 1-6).

Ishikawa et al. does not explicitly disclose an MMSE receiver. However Ishikawa et al. discloses a plurality DFE equalizers. It is well known in the art that a MMSE receiver is a type of DFE equalizer.

7. Claims 8-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Visotsky et al. (US Patent 6,175,588).

(1) With regard to claim 8, Visotsky et al. discloses in (Fig. 1) a method for Minimum Mean Square Error (MMSE) reception of a signal, the method comprising the steps of: receiving a pilot signal at an MMSE receiver; performing a channel estimate for the received pilot signal; determining a mean-square error of the pilot signal estimate; updating a weighting vector for the pilot signal estimate in order to minimize the mean square error of the pilot signal estimate; and applying the weighting vector for the pilot signal estimate to a second channel (abstract, Fig. 2 (226, 252), col. 3, lines 16-20, 45-65, col. 4, lines 17-20, col. 6, lines 19-21, col. 9, lines 40-43).

(2) With regard to claim 9, claim 9 inherits all the limitations of claim 8. Visotsky et al. further discloses wherein the step of receiving the pilot signal at the MMSE receiver comprises the step of receiving a Code Division Multiple Access, CDMA pilot signal at the MMSE receiver (col. 1, lines 37-42, col. 3, lines 4-10, col. 4, lines 66-67).

(3) With regard to claim 10, claim 10 inherits all the limitations of claim 9. Visotsky et al. further discloses wherein the step of applying the weighting vector to the second channel comprises the step of applying the weighting vector to a traffic channel (Fig. 2 (216, 218, 260)).

(4) With regard to claim 11, Visotsky et al. further discloses in (Fig. 1) minimum mean square error receiver (MMSE) comprising: a pilot channel input (136); a second channel input (130); an output comprising an estimate of the pilot channel (140), wherein the estimate of the pilot channel is determined by applying a weighting vector to

the pilot channel; and a second output comprising an estimate of the second channel (108), wherein the estimate of the second channel is determined by applying the weighting vector to the second channel.

(5) With regard to claim 12, claim 12 inherits all the limitations of claim 11.

Visotsky et al. further discloses in (Fig. 1 (130)) wherein the second channel input is a traffic channel input (abstract).

(6) With regard to claim 13, claim 13 inherits all the limitations of claim 11.

Visotsky et al. further discloses wherein the traffic channel input is a Code Division Multiple Access (CDMA) traffic channel input (col. 9, lines 18-43).

(7) With regard to claim 14, claim 14 inherits all the limitations of claim 12.

Visotsky et al. further discloses wherein the pilot channel input is a CDMA pilot channel input (col. 3, lines 4-10, 16-20).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa et al. (US Patent 5,455,844) as applied to claim 1, in view of Visotsky et al. (US Patent 6,175,588).

(1) With regard to claim 2, claim 2 inherits all the limitations of claim 1. However

Ishikawa et al. does not disclose a first despreader having an output from the first MMSE receiver as an input and despreading the output from the first MMSE receiver with a sector-specific long code to produce a first despread output.

However Visotsky et al. discloses in (Fig. 2) a first despreader (206) having an output from the first MMSE receiver (204) as an input and despreading the output from the first MMSE receiver with a sector-specific long code to produce a first despread output (col. 10, lines 59-65).

Therefore it would have been obvious to one of ordinary skill in the art to modify Ishikawa et al. to incorporate a first despreader having an output from the first MMSE receiver as an input and despreading the output from the first MMSE receiver with a sector-specific long code to produce a first despread output in order to reduce the multiple-access interference introduced by sectors in soft-handoff with the subscriber unit and those not in soft-handoff with the subscriber unit (Visotsky et al., col. 2, lines 20-26).

(2) With regard to claim 3, claim 3 inherits all the limitations of claim 2. Visotsky et al. further discloses in (Fig. 2) a second despreader (216) having an output from the second MMSE receiver (214) as an input and despreading the output with a second sector-specific long code to produce a second despread output (col. 11, lines 1-2).

(3) With regard to claim 4, claim 4 inherits all the limitations of claim 2. Visotsky et al. further discloses in (Fig. 2) a second despreader (216) having an output from the second MMSE receiver (214) as an input and despreading the output with a sector-specific long code to produce a second despread output.

(4) With regard to claim 5, claim 5 inherits all the limitations of claim 2. Visotsky et al. further discloses in (Fig. 2) a third despreader (264) having the first despread output (206) as an input and further despreading the first despread output with a first Walsh code (col. 11, lines 20-22, 25-29).

(5) With regard to claim 6, claim 6 inherits all the limitations of claim 5. Visotsky et al. further discloses in (Fig. 2) a fourth despreader (268) having the second despread output (216) as an input and further despreading the second despread output with a second Walsh code.

(6) With regard to claim 7, claim 7 inherits all the limitations of claim 5. Visotsky et al. further discloses in (Fig. 2 (268)) a fourth despreader having the second despread output as an input and further despreading the second despread output with the first Walsh code.

### ***Conclusion***

10. The prior art made record of and not relied upon is considered pertinent to applicant's disclosure:

a. Huang et al. (IEEE) (cited by applicant) discloses an improving receiver performance for pilot-aided frequency selective CDMA channels using a MMSE switch mechanism and multipath noise canceller.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 703-305-8326. The examiner can normally be reached on Monday – Friday, 8-5.




If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

*Cicely Ware*

cqw  
May 20, 2004



STEPHEN CHIN  
SUPERVISORY PATENT EXAMINER  
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